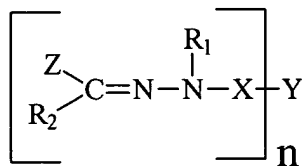


CLAIMS

What is claimed is:

1. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive
5 element comprising:
(a) a charge transport material having the formula



where n is an integer between 2 and 6, inclusive;

- 10 R_1 and R_2 are, independently, H, an alkyl group, an alkaryl group, or an aryl group;

- X is a linking group having the formula $-(\text{CH}_2)_m-$, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group,
15 urethane, urea, an ester group, a NR_3 group, a CHR_4 group, or a CR_5R_6 group where R_3 , R_4 , R_5 , and R_6 are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group;

- Y comprises a bond, C, N, O, S, a branched or linear $-(\text{CH}_2)_p-$ group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or
20 a NR_7 group where R_7 is hydrogen atom, an alkyl group, or aryl group, wherein Y has a multivalent structure selected to form n bonds with the corresponding X groups; and

Z comprises a heterocyclic group selected from the group consisting of phenothiazine group, phenoxazine group, phenoxathiin group, dibenzo(1,4)dioxin group, thianthrene group, and phenazine group; and

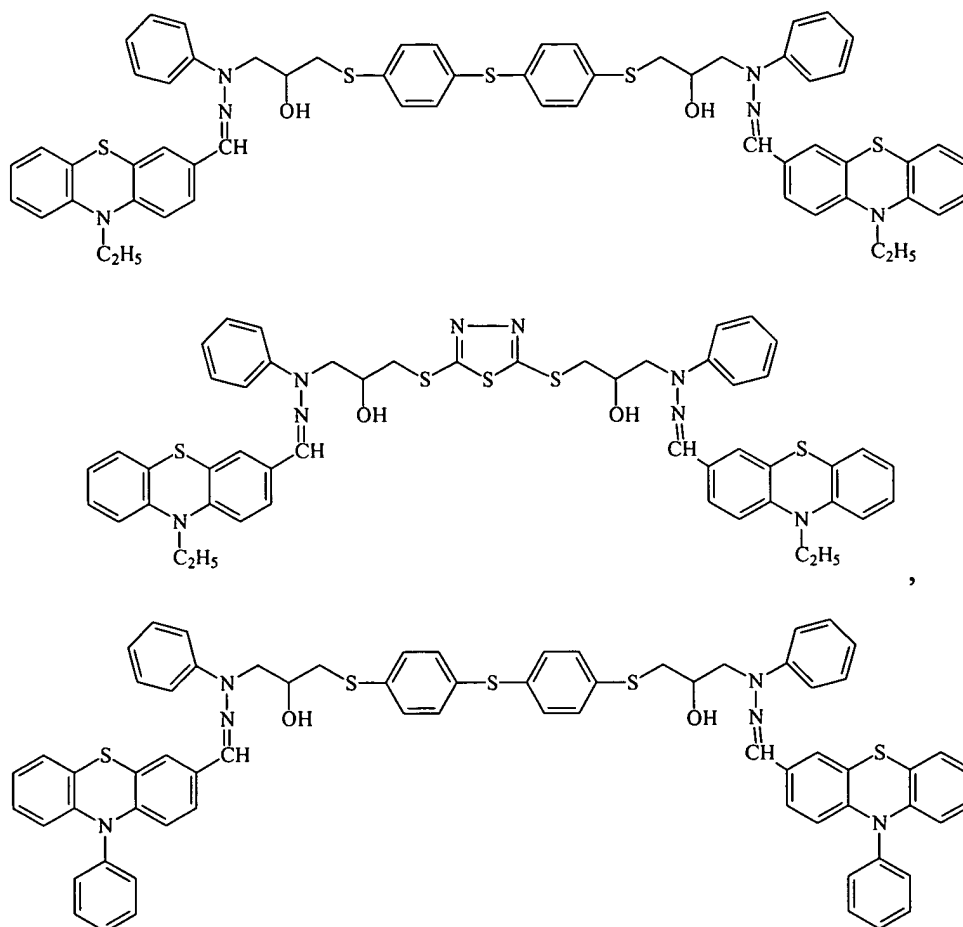
- 25 (b) a charge generating compound.

2. An organophotoreceptor according to claim 1 wherein Y is a heterocyclic group.

3. An organophotoreceptor according to claim 1 wherein Y is a bond, O, S, or CH₂ and X is -(CH₂)_m- group where m is an integer between 0 and 20 and where at least one of the CH₂ groups is replaced by O, S, C=O, O=S=O, an ester group, a heterocyclic group, or an aromatic group.

5

4. An organophotoreceptor according to claim 1 wherein the charge transport material has a formula selected from the group consisting of the following:



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5. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a second charge transport material.

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6. An organophotoreceptor according to claim 5 wherein the second charge transport material comprises an electron transport compound.

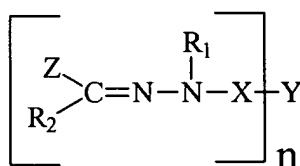
7. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a binder.

5 8. An electrophotographic imaging apparatus comprising:

(a) a light imaging component; and

(b) an organophotoreceptor oriented to receive light from the light imaging component, the organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive
10 element comprising

(i) a charge transport material having the formula



where n is an integer between 2 and 6, inclusive;

15 R₁ and R₂ are, independently, H, an alkyl group, an alkaryl group, or an aryl group;

X is a linking group having the formula -(CH₂)_m-, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group,
20 urethane, urea, an ester group, a NR₃ group, a CHR₄ group, or a CR₅R₆ group where R₃, R₄, R₅, and R₆ are, independently, H, hydroxyl group, thiol group, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group;

Y comprises a bond, C, N, O, S, a branched or linear -(CH₂)_p- group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or
25 a NR₇ group where R₇ is hydrogen atom, an alkyl group, or aryl group, wherein Y has a multivalent structure selected to form n bonds with the corresponding X groups; and

Z comprises a heterocyclic group selected from the group consisting of phenothiazine group, phenoxazine group, phenoxathiin group, dibenzo(1,4)dioxin group, thianthrene group, and phenazine group; and

(ii) a charge generating compound.

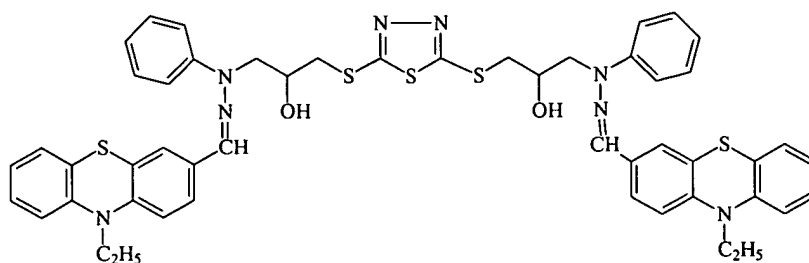
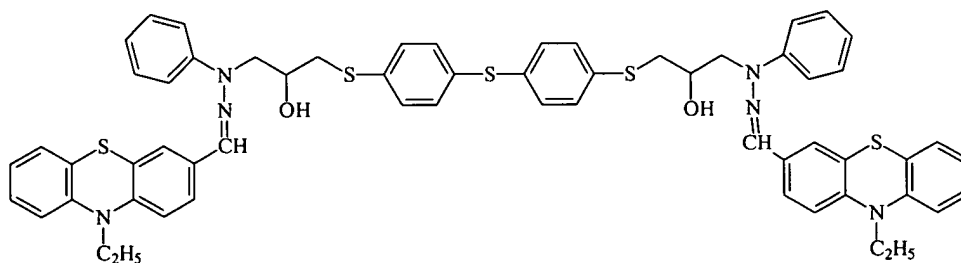
9. An electrophotographic imaging apparatus according to claim 8 wherein Y is a heterocyclic group.

5

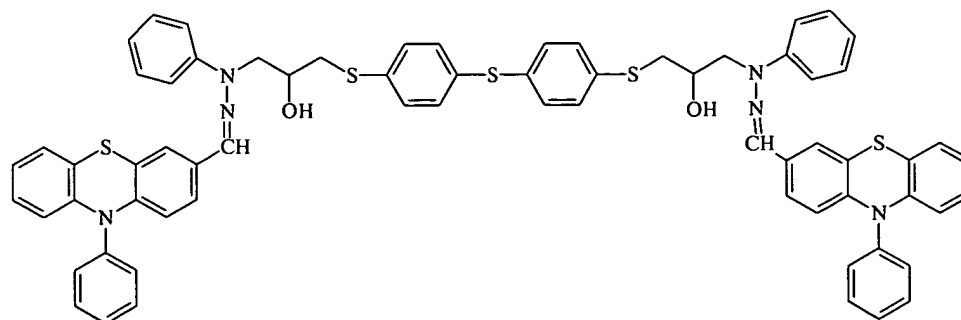
10. An electrophotographic imaging apparatus according to claim 8 wherein Y is a bond, O, S, or CH₂ and X is -(CH₂)_m- group where m is an integer between 0 and 20 and where at least one of the CH₂ groups is replaced by O, S, C=O, O=S=O, an ester group, a heterocyclic group, or an aromatic group.

10

11. An electrophotographic imaging apparatus according to claim 8, wherein the charge transport material has a formula selected from the group consisting of the following:



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12. An electrophotographic imaging apparatus according to claim 8 wherein the photoconductive element further comprises a second charge transport material.

13. An electrophotographic imaging apparatus according to claim 12 wherein
5 second charge transport material comprises an electron transport compound.

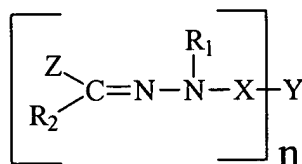
14. An electrophotographic imaging apparatus according to claim 8 further comprising a liquid toner dispenser.

10 15. An electrophotographic imaging process comprising;

(a) applying an electrical charge to a surface of an organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

(i) a charge transport material having the formula

15



where n is an integer between 2 and 6, inclusive;

R₁ and R₂ are, independently, H, an alkyl group, an alkaryl group, or an aryl group;

20 X is a linking group having the formula -(CH₂)_m-, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, a NR₃ group, a CHR₄ group, or a CR₅R₆ group where R₃, R₄, R₅, and R₆ are, independently, H, hydroxyl group, thiol group, an alkyl group, an
25 alkaryl group, a heterocyclic group, or an aryl group;

Y comprises a bond, C, N, O, S, a branched or linear -(CH₂)_p- group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or a NR₇ group where R₇ is hydrogen atom, an alkyl group, or aryl group, wherein Y has a multivalent structure selected to form n bonds with the corresponding X groups; and

Z comprises a heterocyclic group selected from the group consisting of phenothiazine group, phenoxazine group, phenoxathiin group, dibenzo(1,4)dioxin group, thianthrene group, and phenazine group; and

(ii) a charge generating compound.

5 (b) imagewise exposing the surface of the organophotoreceptor to radiation to dissipate charge in selected areas and thereby form a pattern of charged and uncharged areas on the surface;

(c) contacting the surface with a toner to create a toned image; and

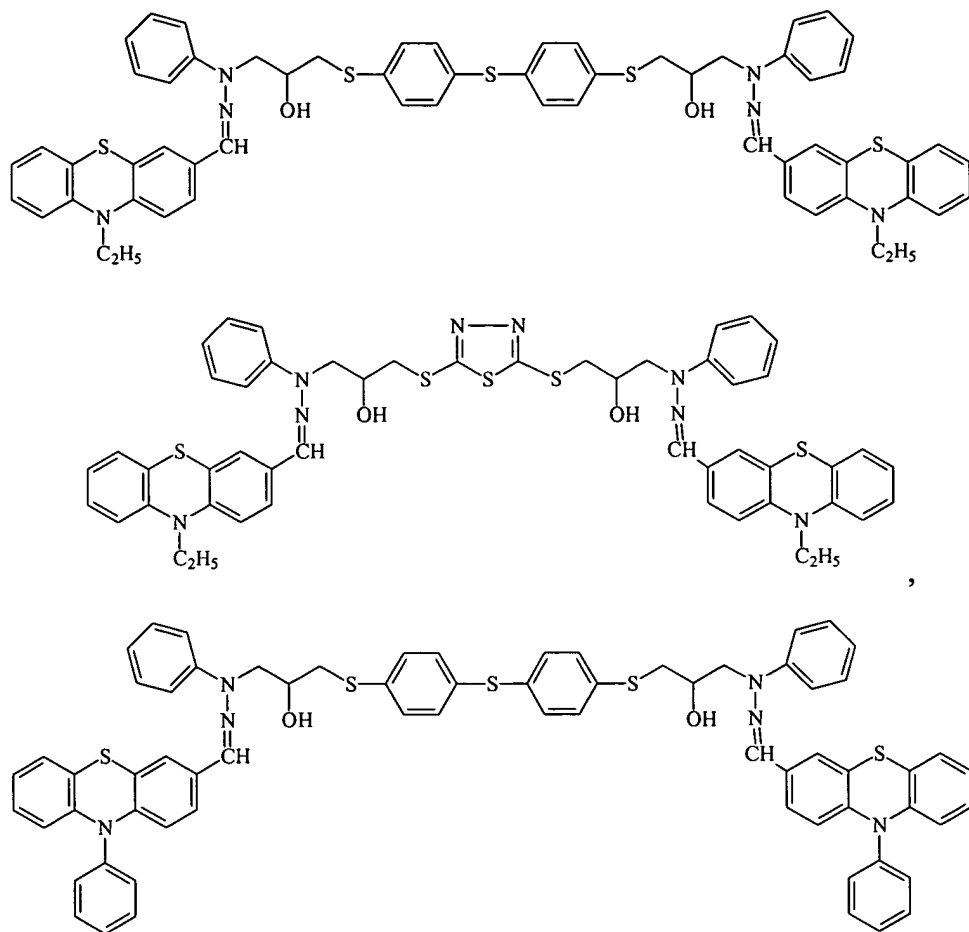
(d) transferring the toned image to substrate.

10

16. An electrophotographic imaging process according to claim 15 wherein Y is a heterocyclic group.

15 17. An electrophotographic imaging process according to claim 15 wherein Y is a bond, O, S, or CH₂ and X is -(CH₂)_m- group where m is an integer between 0 and 20 and where at least one of the CH₂ groups is replaced by O, S, C=O, O=S=O, an ester group, a heterocyclic group, or an aromatic group.

20 18. An electrophotographic imaging process according to claim 15 wherein the charge transport material has a formula selected from the group consisting of the following:



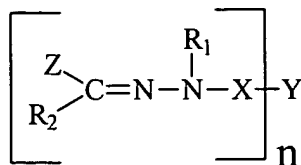
19. An electrophotographic imaging process according to claim 15 wherein the
5 photoconductive element further comprises a second charge transport material.

20. An electrophotographic imaging process according to claim 19 wherein the
second charge transport material comprises an electron transport compound.

10 21. An electrophotographic imaging process according to claim 15 wherein the
photoconductive element further comprises a binder.

22. An electrophotographic imaging process according to claim 15 wherein the
toner comprises a liquid toner comprising a dispersion of colorant particles in an organic
15 liquid.

23. A charge transport material having the formula



where n is an integer between 2 and 6, inclusive;

R₁ and R₂ are, independently, H, an alkyl group, an alkaryl group, or an aryl group;

5 X is a linking group having the formula -(CH₂)_m-, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, a NR₃ group, a CHR₄ group, or a CR₅R₆ group where R₃, R₄, R₅, and R₆ are, independently, H, hydroxyl group, thiol group, an alkyl group, an
10 alkaryl group, a heterocyclic group, or an aryl group;

Y comprises a bond, C, N, O, S, a branched or linear -(CH₂)_p- group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or a NR₇ group where R₇ is hydrogen atom, an alkyl group, or aryl group, wherein Y has a multivalent structure selected to form n bonds with the corresponding X groups; and

15 Z comprises a heterocyclic group selected from the group consisting of phenothiazine group, phenoxazine group, phenoxathiin group, dibenzo(1,4)dioxin group, thianthrene group, and phenazine group.

20 24. A charge transport material according to claim 23 wherein Y is a heterocyclic group.

25 25. A charge transport material according to claim 23 wherein Y is a bond, O, S, or CH₂ and X is -(CH₂)_m- group where m is an integer between 0 and 20 and where at least one of the CH₂ groups is replaced by O, S, C=O, O=S=O, an ester group, a heterocyclic group, or an aromatic group.

26. A charge transport material according to claim 23 wherein the charge transport material has a formula selected from the group consisting of the following:

